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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,392	09/26/2003	Hiromasa Maruno	SUT-0226	2726

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EXAMINER	
PRABHAKHER, PRITHAM DAVID	
ART UNIT	**PAPER NUMBER**
2622	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/670,392	MARUNO ET AL.	
	Examiner	Art Unit	
	Pritham Prabhakher	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09/26/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama et al. (US Patent No.: 5798791) and further in view of Tonkin et al. (US Pub No.: 2002/0171741A1) and Ostromek et al. (US Patent No.: 6760062B2).

*With regard to **Claim 1**, Katayama et al. teach of an imaging apparatus having a plurality of image pickup means (two pick-up image systems, **Column 15, Line 38**), comprising:*

*coupling means for optically coupling (synthesizing/combining) optical images obtained from said plurality of image pickup means (The image converting unit 835 found in the image processing unit 830, generates one synthesized image from the two images obtained, **Column 16, Lines 33-36**);*

*Katayama also teaches of an overall control means (control unit 820) capable of communicating with the image-converting unit 835 (coupling unit), **See Figure 31**. However, Katayama does not specifically teach that the control means are capable of bi-directional communication, but Tonkin et al. do, **Paragraph 0009 of Tonkin et al.** It would have been obvious to one of ordinary skill in the art at the time of the invention to*

incorporate control means capable of bi-directional communication into the teachings of Katayama because this would have saved space and cut down on power consumption.

Also, Katayama and Tonkin et al. do not teach of a timing control means for controlling image pickup timing of said image pickup means. Katayama and Tonkin et al. also do not teach of the said coupling means having at least said timing control means mounted therein. Ostromek et al. teach of a timing module 16 for controlling the image pickup timing of image pickup means (sensor 22), ***Column 3, Lines 18-24 of Ostromek et al.*** *It would have been obvious to one of ordinary skill in the art to incorporate a timing module (timing control means) into the teachings of Katayama and Tonkin et al. and mount it with the coupling means, because this helps synchronize the image from one camera with the image from another camera. The data from one subsystem (sensor 22) can be delayed in order to be synchronized (combined) with the data from another subsystem (sensor 34),* ***Column 1, Lines 37-44 and Column 3, Lines 54-55 of Ostromek et al.***

Regarding ***Claim 2****, Katayama, Tonkin et al. and Ostromek et al. disclose an imaging apparatus as defined in claim 1, wherein said coupling means is attachable to and detachable from each of said image pickup means, and attachable to and detachable from said overall control means, and each of said image pickup means is attachable to and detachable from said overall control means. (The cameras (image pickup means) can be attached and detached from the control means and coupling means because they can be made remote (isolated),* ***Paragraph 0038 and Figure 3 of***

Tonkin et al. *It would have been obvious to one of ordinary skill in the art at the time of the invention to have the image pickup means attach and detach from the rest of the system because this increases the flexibility of the system,* ***Paragraphs 0004 and 0005 of Tonkin et al.)***

In regard to ***Claim 3****, Katayama, Tonkin et al. and Ostromek et al. disclose an imaging apparatus as defined in claim 1, wherein said coupling means has, mounted therein, storage means for storing imaging data which are optical images obtained from said image pickup means* ***(Figure 31 of Katayama*** *shows that the Image Processing unit 830, which provides the means for combining/synthesizing the images, has a Right and Left Image Memory for storing images that are picked up****)****.*

With regard to ***Claim 4****, Katayama, Tonkin et al. and Ostromek et al. disclose an imaging apparatus as defined in claim 1, further comprising dividing means for deflecting light or dispersing light with a plurality of wavelengths to divide the light into a plurality of components, said image pickup means acquiring said components of the light divided by said split means as optical images, respectively* ***(****Katayama teaches of a color separation prism 812L separates beams of light into three (plurality) colors. There are CCD sensors 813L (image pickup means) provided for each beam of light separated by the color separation prism,* ***Column 15, Lines 40-51 of Katayama)****.*

In regard to ***Claim 5****, Katayama, Tonkin et al. and Ostromek et al. disclose an imaging apparatus as defined in claim 4, wherein said dividing means comprises a beam split prism for dispersing light with a plurality of wavelengths* ***(****Katayama teaches of a color separation prism 812L separates beams of light into three (plurality) colors.*

There are CCD sensors 813L (image pickup means) provided for each beam of light separated by the color separation prism, ***Column 15, Lines 40-51 of Katayama)****.*

With regard to ***Claim 6****, Katayama, Tonkin et al. and Ostromek et al. disclose an imaging apparatus as defined in claim 4, where there is a means for deflecting light. However, the references of Katayama, Tonkin et al. and Ostromek et al. do not teach or specifically disclose the use of a half-mirror to deflect light. Official Notice is taken saying that it would have been obvious and well known to one of ordinary skill in the art to substitute a half-mirror in the place of a prism because half-mirrors are another conventional way of splitting light.*

Regarding ***Claim 7****, Katayama, Tonkin et al. and Ostromek et al. disclose an imaging apparatus as defined in claim 1, further comprising delay means for shifting said timing (Ostromek et al. teach that the data from one subsystem (imaging apparatus) may be delayed in order to be synchronized with another subsystem,* ***Column 3, Lines 54-55 of Ostromek et al.)****.*

In regard to ***Claim 8****, Katayama, Tonkin et al. and Ostromek et al. disclose an imaging apparatus as defined in claim 1, wherein said overall control means is capable of bidirectional communication with said coupling means through cables, said cables being connected to said overall control means and said coupling means .Katayama teaches that the overall control means is capable of communication with the said coupling means* ***See Figure 31 of Katayama****. However, Katayama does not specifically teach that the control means are capable of bi-directional communication through cables, but Tonkin et al. do in* ***Paragraphs 0008 and 0009 of Tonkin et al.*** *It would*

have been obvious to one of ordinary skill in the art at the time of the invention to incorporate control means capable of bi-directional communication by means of cables into the teachings of Katayama because this would have saved space and cut down on power consumption.

With regard to ***Claim 9****, Katayama, Tonkin et al. and Ostromek et al. disclose an imaging apparatus ads defined in claim 1, wherein said overall control means is capable of bidirectional communication with said coupling means through a function to transmit and receive electromagnetic wave, said function being provided for each of said overall control means and said coupling means (Tonkin et al. teaches that radio (electromagnetic) transmissions can be used to establish a bi-directional link in* ***Paragraph 0036 of Tonkin et al.)****.*

Regarding ***Claim 10,*** *Katayama teaches of a coupling apparatus (The image converting unit 835 found in the image processing unit 830) for use with a imaging apparatus (two pick-up image systems,* ***Column 15, Line 38)*** *having timing control means for controlling image pickup timing of a plurality of image pickup means, and overall control means, wherein:*

said coupling apparatus forms part of said imaging apparatus (The image converting unit 835 found in the image processing unit 830, generates one synthesized image from the two images obtained from the imaging apparatus, ***Column 16, Lines 33-36 of Katayama as well as Figures 30 and 31)****;*

Although Katayama teaches of the coupling apparatus being arranged for optically coupling (synthesizing/combining) optical images obtained from said plurality of image pickup means (The image converting unit 835 found in the image processing unit 830, generates one synthesized image from the two images obtained from the imaging apparatus, ***Column 16, Lines 33-36 of Katayama)****, it is not explicitly taught that the said coupling apparatus has said timing control means mounted therein. Ostromek et al. teach of a timing module 16 for controlling the image pickup timing of image pickup means (sensor 22),* ***Column 3, Lines 18-24 of Ostromek et al.*** *It would have been obvious to one of ordinary skill in the art to incorporate a timing module (timing control means) into the teachings of Katayama and mount it with the coupling means, because this helps synchronize the image from one camera with the image from another camera. The data from one subsystem (sensor 22) can be delayed in order to be synchronized (combined) with the data from another subsystem (sensor 34),* ***Column 1, Lines 37-44 and Column 3, Lines 54-55 of Ostromek et al.***

Katayama and Ostromek et al. also teach of an overall control means (control unit 820) capable of communicating with the image-converting unit 835 (coupling unit), ***See Figure 31****. However, Katayama and Ostromek et al. do not specifically teach that the control means are capable of bi-directional communication, but Tonkin et al. do,* ***Paragraph 0009 of Tonkin et al.*** *It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate control means capable of bi-directional communication into the teachings of Katayama and Ostromek et al. because this would have saved space and cut down on power consumption.*

*Regarding **Claim 11**, Katayama, Ostromek et al. and Tonkin et al. disclose a coupling apparatus as defined in claim 10, wherein said coupling apparatus is attachable to and detachable from each of said image pickup means, and attachable to and detachable from said overall control means (The cameras (image pickup means) can be attached and detached from the control means and coupling means because they can be made remote (isolated), **Paragraph 0038 and Figure 3 of Tonkin et al.** It would have been obvious to one of ordinary skill in the art at the time of the invention to have the image pickup means attach and detach from the rest of the system because this increases the flexibility of the system, **Paragraphs 0004 and 0005 of Tonkin et al.).***

*In regard to **Claim 12**, Katayama, Ostromek et al. and Tonkin et al. disclose a coupling apparatus as defined in claim 10, comprising storage means mounted therein for storing imaging data optically coupling said optical images **(Figure 31 of Katayama** shows that the Image Processing unit 830, which provides the means for combining/synthesizing the images, has a Synthesized Image Memory 836 for storing images that are coupled).*

*With regard to **Claim 13**, Katayama, Ostromek et al. and Tonkin et al. disclose a coupling apparatus as defined in claim 10, comprising dividing means mounted therein for deflecting light or dispersing light with a plurality of wavelengths to divide the light into a plurality of components, said image pickup means acquiring said components of the light divided by said split means as optical images, respectively (Katayama teaches of a color separation prism 812L separates beams of light into three (plurality) colors.*

There are CCD sensors 813L (image pickup means) provided for each beam of light separated by the color separation prism, ***Column 15, Lines 40-51 of Katayama)****.*

Regarding ***Claim 14****, Katayama, Ostromek et al. and Tonkin et al. disclose a coupling apparatus as defined in claim 13, wherein said dividing means comprises a beam split prism for dispersing light with a plurality of wavelengths (Katayama teaches of a color separation prism 812L separates beams of light into three (plurality) colors. There are CCD sensors 813L (image pickup means) provided for each beam of light separated by the color separation prism,* ***Column 15, Lines 40-51 of Katayama)****.*

With regard to ***Claim 15****, Katayama, Ostromek et al. and Tonkin et al. disclose an imaging apparatus as defined in claim 13, where there is a means for deflecting light. However, the references of Katayama, Tonkin et al. and Ostromek et al. do not teach or specifically disclose the use of a half-mirror to deflect light. Official Notice is taken saying that it would have been obvious and well known to one of ordinary skill in the art to substitute a half-mirror in the place of a prism because half-mirrors are another conventional way of splitting light.*

In regard to ***Claim 16****, Katayama, Ostromek et al. and Tonkin et al. disclose a coupling apparatus as defined in claim 10, further comprising delay means for shifting said timing (Ostromek et al. teach that the data from one subsystem (imaging apparatus) may be delayed in order to be synchronized with another subsystem,* ***Column 3, Lines 54-55 of Ostromek et al.)****.*

Regarding ***Claim 17****, Katayama, Ostromek et al. and Tonkin et al. disclose an imaging apparatus as defined in claim 10, wherein said overall control means is capable*

of bidirectional communication with said coupling means through cables, said cables being connected to said overall control means and said coupling means. Katayama teaches that the overall control means is capable of communication with the said coupling means ***See Figure 31 of Katayama****. However, Katayama does not specifically teach that the control means are capable of bi-directional communication through cables, but Tonkin et al. do in* ***Paragraphs 0008 and 0009 of Tonkin et al.*** *It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate control means capable of bi-directional communication by means of cables into the teachings of Katayama because this would have saved space and cut down on power consumption.*

With regard to ***Claim 18****, Katayama, Ostromek et al. and Tonkin et al. disclose an imaging apparatus ads defined in claim 1, wherein said overall control means is capable of bidirectional communication with said coupling means through a function to transmit and receive electromagnetic wave, said function being provided for each of said overall control means and said coupling means (Tonkin et al. teaches that radio (electromagnetic) transmissions can be used to establish a bi-directional link in* ***Paragraph 0036 of Tonkin et al.)****.*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pritham Prabhakher whose telephone number is 571-270-1128. The examiner can normally be reached on M-F (7:30-5:00) Alt Friday's Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571)272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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